NEW U.S.A. ROBBER FLIES (DIPTERA: ASILIDAE).

By Stanley W. Bromley, Stamford, Conn.

Several interesting collections have been submitted to me recently for identification. In these collections were disclosed ten new species of Asilidae, descriptions of which are given in this paper.

Acknowledgments are due Mr. Josef Knull, Curator of the Ohio State University collection, Dr. R. H. Beamer of the University of Kansas, Mr. E. P. Van Duzee of the California Academy of Sciences, Mr. Joseph Schuh of Oregon State College, Dr. J. C. Bradley of Cornell University and Mr. F. S. Blanton of Babylon, New York.

Promachus atrox n. sp.

Total length, 26–29 mm. A robust, very dark colored species of the *bastardi* group, evidently related to *P. truquii* Bellardi, having the mystax mostly and the beard entirely white and with a dense patch of white hairs on the anterior aspect of the front coxae. The wings are brownish with a dark shadow in the distal fourth of the marginal cell and the first submarginal cell with a gray median shadow occupying the central three-eighths of the cell. The hypopygium on the dorsum bears a dense mass of silvery white hairs.

Male. Head black, vertex brown pollinose, face silvery pollinose shading to brown towards the lower orbital region. Mystax narrow, densely white with a few fine black hairs intermingled; hairs of vertex and occipital bristles, black; occiput with fine white hairs; pronotum with black bristles; beard densely white; palpi with coarse black bristles. Thorax black, dark chocolate brown pollinose; hairs and bristles of mesonotum black; scutellum densely covered with coarse black bristles; legs piceous, the fore legs brownish. The legs bear black hairs and bristles, although there are some pale hairs on the coxae and femora, while the anterior coxae bear a dense tuft of white hairs on the anterior portion. Wings smoky brown with deep gray shadows in the marginal and submarginal cells. Halteres with pale brown knobs, pulvilli pale yellowish brown. Abdomen deep black with largely black hairs, the sides and venter with dark chocolate brown pollen. There are a few scattered white hairs on the sides of the tergites. Hypopygium short and broad wider than, but equal in length to, the last two segments. The ventral portion is

black-haired while the dorsum bears a dense tuft of silvery white hairs.

Female. Similar, but with several white hairs among the black bristles of the scutellum. In both sexes the wings project beyond the tip of the abdomen.

Holotype, male, Chiricahua Mts., Sept. 14, 1938 (D. J. and J. N. Knull, collectors).

Allotype, female, same data. (Both types in Ohio State University Collection.)

This species differs from *P. bastardi* and *P. truquii* in the general black coloration with the contrasting snow-white mystax, beard, and tufts on the anterior coxae.

Erax vertebratus n. sp.

Total length 16–23 mm. A grayish white pollinose species with the abdomen banded with black, very similar to *zonatus* Hine but distinguished by the larger, broader hypopygium, the upper forceps being broader and more bulbous than in *zonatus.* The hypopygium is black or piceous instead of red as in *zonatus.* I am unable to satisfactorily distinguish the females.

Holotype, male, Warner Springs, Calif., July 28, 1938 (Jean Russell).

Allotype, female, Idyllwild, Calif., July 29, 1938 (Jean Russell). (Both in University of Kansas Collection.)

Paratypes, males, Warner Springs, Calif., July 28, 1938 (Jean Russell), Towie, Calif., (Jean Russell); females, Warner Springs, Calif., July 28, 1938 (Jean Russell), Chiricahua Mts., Ariz., July 14, 1938 (Jean Russell).

Erax subaridus n. sp.

Total length 14–22 mm. A black species, grayish pollinose, of the *aridus* group as outlined by Hine, the furcation of the third vein nearly oposite the base of the second posterior cell.

Male. Mystax white above, black below. Beard white. Bristles of vertex black (a few yellow); of occiput yellowish. Palpal bristles black, a few whitish. Thorax gray pollinose with the usual mesonotal markings partly obscured. Mesonotum and scutellum with abundance of black hairs and bristles, a few bristles above the base of the wing yellowish. Legs black with bases of tibiae reddish, thickly white-haired with some yellowish white and some black bristles. Abdomen black, white-haired; the posterior and lateral margins of tergites

pale pollinose; tergites six and seven silvery gray. Genitalia with pale hairs.

Female. Similar. The ovipositor about equal in length to the three preceding segments combined. The scutellum bears in addition to the black, several pale hairs and bristles.

Holotype, male, Tuscon, Ariz., Mar. 8, 1937 (W. Benedict).

Allotopotype, female, same data. (Both in University of Kansas Collection.)

Paratopotypes, 13 males, 21 females, same data.

Paratypes, male, Baboquivari Mts., Ariz., Mar. 31, 1937 (W. Benedict); 2 males, 2 females, base of Pinal Mts., Ariz., Mar. (D. K. Duncan). The latter were kindly sent to me by Mr. Duncan of Globe, Ariz., and are in my collection.

This species is closely related to *aridus* Will. but is smaller, darker and the hairs and bristles of the scutellum are mostly black instead of pale, while there are more black bristles on the legs. The series of paratypes from the base of the Pinal Mts., Ariz., collected by Mr. Duncan, are larger (21–25 mm.) and blacker with even more black bristles on the legs.

Erax benedicti n. sp.

Total length 15–20 mm. A pale yellowish-brown pollinose species of the *stramineus* group, quite distinct from *dubius* Will., *stramineus* Will. and *rapax* O. S. in that the eighth sternite in the male is greatly prolonged and bowed under the base of the hypopygium.

Male. Most of the vestiture of the head is whitish. Bristles of vertex and occiput mostly black, a few yellow. Mesonotum pale yellowish brown pollinose; pleura gray-pollinose. Mesonotal hairs and bristles black, some fine white long pile posteriorly. Scutellum with fine white hairs and yellowish-white marginal bristles. Wings hyaline, the furcation of the third vein slightly before the middle of the distance between the base of the second posterior cell and the small cross vein. Legs black (bases of tibiae reddish) with white hairs and black bristles in most cases but some have most or all of the bristles pale. Abdomen silvery-gray pollinose with white hairs, those on tergites 1–4 long and parted in the middle, those on 5 shorter, but still parted; 6 and 7 have only very short hairs. The eighth sternite is produced to about the length of the sixth tergite. Genitalia blackish with both black and pale short hairs, longer than segments 6 and 7 combined, narrow, somewhat truncate at the tip from the side view. (Fig. 1.)

Female. Similar. Occipital, vertical and mesonotal bristles all or mostly pale. There are a number of pale bristles on the legs also. Ovipositor slender, black, slightly longer than segments 5, 6, and 7 combined.

Holotype, male, Winslow, Ariz., June 13, 1937 (W. Benedict). *Allotype,* female, Santa Rita Mts., Ariz., May 9, 1937 (W. Benedict). (Both these types in University of Kansas Collection.)

Paratypes, 3 males, 14 females, Santa Rita Mts., Ariz., May 9, 1937 (W. Benedict) ; 1 female, Winslow, Ariz., June 12, 1937 (W. Benedict) ; 2 males, 2 females, Baboquivari Mts., Ariz., Apr. 19, 1937 (W. Benedict) ; 2 females, Grand Canyon, Ariz., June 12, 1937 (W. Benedict) ; 2 females, Doney, Ariz., June 13, 1937 (W. Benedict) ; 1 female, Mustang Mts., Ariz., May 18, 1937 (W. Benedict) ; 1 male, Tuscon, Ariz., Apr. 24, 1937 (W. Benedict) ; 1 male, Douglas, Ariz., May 18, 1937 (W. Benedict).

There is considerable variation in the proportion of black and yellow bristles on the vertex, occiput and legs. Some males, like most of the females, have these bristles all pale, while in a few instances there may be a stray black bristle or two on the scutellum. In some females there may be black bristles on the occiput.

I have named this species in honor of W. Benedict who has collected a great many Asilidae as well as other insects for the University of Kansas in the Southwest and who had obtained the entire series of this apparently overlooked species.

Erax wilcoxi n. sp.

Total length 10.5 mm. Described from a single male. A very small, unique species of the *stramineus* group, running in my Texas Key to *pilosus* Hine but differing in having the bristles of the posterior portion of the mesonotum black, the abdomen black banded and only sparsely haired, and in the shape of the genitalia. The furcation of the third vein is distinctly beyond the middle of the distance between the base of the second posterior cell and the small cross vein. The femora are black, the mystax and scutellum white-haired.

Male. Head white pollinose, vestiture white, except distal portion of palpi where the hairs are black. Thorax gray-white pollinose, with more of a brownish tone above. Coxae and pleura with white hairs. Mesonotum with black hairs and bristles, except supra-alars which are pale yellow. Scutellum with pale hairs and bristles. Legs reddish with femora black. Wings hyaline, iridescent. Abdomen gray-white pollinose:

tergites two, three, four, five and six with a black band; hairs more sparse than in most members of *stramineus* group. Genitalia reddish-yellow with pale hairs. (Fig. 2.)

Holotype, male, Uvalde, Texas, June 15, 1930 (J. O. Martin). (Calif. Acad. Sci.)

I have named this unique species in honor of Mr. Joseph Wilcox of Alhambra, Calif., who has contributed so much to our knowledge of the Asilidae of the Western States.

Asilus knulli n. sp.

Total length 10–12.5 mm. A small black species differing from *A. citus* Hine in that the legs and genitalia are all black.

Male. Black, gray pollinose; the genitalia small, narrow-pointed, black. Face gray-white pollinose. Mystax whitish with a few black bristles above. Beard white. Vertex and occiput with black bristles. Legs black with fine pale hairs. Bristles of mesonotum black. Scutellars (2) black. Wings subhyaline, apex and posterior margin faintly gray.

Female. Similar. Three scutellars in allotype, one black, two straw-colored.

Holotype, male, Huachuca Mts., Ariz., July 20, 1936 (J. N. Knull).

Allotype, female, same data. (Both types in Ohio State University Coll.)

Paratopotype, male, same data.

Paratype, female, Chiricahua Mts., Ariz., July 26, 1937 (J. N. Knull); male, Chiricahua Mts., Ariz., July 14, 1938 (R. H. Beamer).

This species is named in honor of Mr. Josef N. Knull, Curator of the Ohio State University Insect Collection.

Asilus schuhi n. sp.

Total length 14–17 mm. A black species almost completely grayish-white pollinose with completely black legs and four or more upright black bristles on the margin of the scutellum.

Male. Pollen of the head whitish with a yellowish tinge. Mystax largely white but with a few black bristles in the upper portion. Beard white. Palpi with a few dark bristles. Bristles of vertex, antennae and occiput black. Antennae black, the third segment flattened, appearing linear from above, oval from the side. Arista curved outward, slightly shorter than the third segment. Thorax pale brownish-gray pollinose, giving an ashy appearance when viewed from a distance.

Mesonotum with black hairs and bristles. Scutellum ashy-gray pollinose, with about six upturned black marginal bristles, disc of scutellum with pale hairs. Pleura with pale hairs, the hypopleura with a tuft of long whitish hairs. Coxae with white bristles. Legs black, densely covered with fine white hairs but the bristles black. Wings pale smoky brown, abdomen gray pollinose, the median portions of the tergites with a distinct brownish tinge, hairs white. Hypopygium small, compact, piceous, with some black and some white hairs.

Female. Similar, but with only four marginal scutellars. Ovipositor short, conical, black, slightly less in length than segments six and seven combined.

Holotype, male, Parkdale, Ore., June 30, 1938 (E. Gray and J. Schuh).

Allotopotype, female, same data. (Both types in Oregon State College Coll.)

Paratopotypes, 3 males, 1 female, same data.

I am naming this species in honor of Mr. Joe Schuh, an active collector of Asilidae in Oregon. *Asilus schuhi* appears to be related to *A. callidus* Will. from which it may be readily distinguished by the completely black legs and the ashy-gray pollinose condition of the entire body.

Asilus floridensis n. sp.

Total length 14–15 mm. A small dark brown species with the posterior aspect of the femora more or less reddish. The tibiae reddish with black tips and a black spot on the middle of the inner side. Runs to *johnsoni* Hine in Hine's Key in Ann. Ent. Soc. Amer., II, fig. 2, p. 144, 1909, but differs in being smaller and having the male genitalia black instead of dark red. Differs from *prairiensis* Tucker in having the occipital bristles black and the arista nearly as long as the third antennal segment.

Male. Mystax straw-yellow, upper portion with black bristles. Beard pale straw-colored. Bristles of antennae, vertex, and occiput black. Arista nearly as long as third antennal segment. Thorax brownish pollinose with a black median line extending from pronotum to scutellum dividing into three thin lines posteriorly. Legs reddish, femora blackish, except distal fifth to third and the posterior aspects which are reddish. Tibiae reddish with tips black and a broad black spot at the middle of the inner aspect. Tarsal segments reddish with black tips. Hairs of coxae and pleura yellowish, bristles of leg

black. Hairs and bristles of mesonotum black, scutellars (2) black. Posterior tibiae with three bristles on the anterior aspect. Wings pale reddish, subhyaline. Abdomen grayish brown pollinose, posterior and lateral margins of segments grayish pollinose. Genitalia black. (Fig. 3.)

Holotype, male, Ocala, Fla., Nov. 5, 1932 (F. S. Blanton). (In S. W. Bromley Coll.)

Paratopotype, male, same data.

Asilus fattigi n. sp.

Total length 23–26 mm. A large light brown species with red legs, related to *antimachus* Walker but differs in having the femora entirely reddish.

Male. Mystax whitish with one or two black bristles above. Beard and genal hairs white. Occipital bristles black. Arista three-fourths the length of third antennal segment. Palpi very small, thinly haired with small dark pile. Mesonotum pale yellowish pollinose with a broad black median stripe and three dark lateral spots on each side. Scutellum yellowish pollinose with fine black hairs on disc and two long black bristles on margin. Wings long and broad, hyaline, the tip and posterior borders suffused with gray. Abdomen yellowish gray pollinose, the tergites with darker dorsal areas. Bristles at sides of abdominal segments straw-colored. Legs red; knees, extreme tips of tibiae and of tarsal segments blackish. Bristles of legs black. Halteres yellowish. Genitalia black. (Fig. 4.)

Female. Similar. Ovipositor conical, laterally compressed, slightly longer than segments six and seven together.

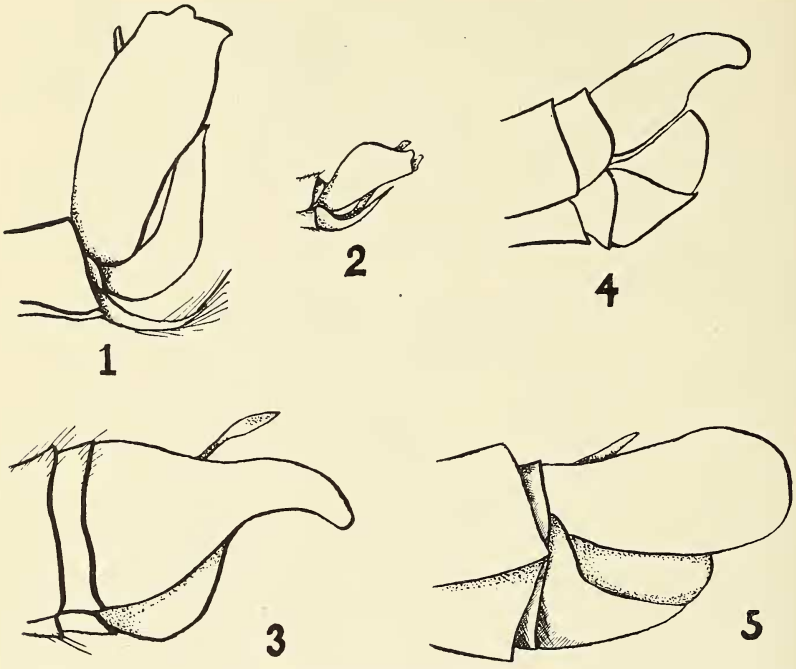
Holotype and *Allotopotype,* male and female, both on same pin. Spring Creek, Ga., May 18–21, 1916. (J. C. Bradley.) (In Cornell University Coll.)

Paratype, male, Savannah, Ga., May 24, 1931.

I take pleasure in naming this species in honor of Prof. P. W. Fattig of Emory University, Ga., who has worked extensively on faunal lists of Georgia.

Asilus blantoni n. sp.

Total length 16–21 mm. A grayish species with two to four black marginal scutellars, arista of antenna about three-fourths the length of the third segment, and two bristles on anterior aspect of hind tibiae. Related to *notatus* Wied. but differs in having the tips of the femora largely red, the tibiae and tarsi mostly reddish,



EXPLANATION OF FIGURES.

(Lateral aspect of Male genitalia.)

FIG. 1. *Erax benedicti* new species.
FIG. 2. *Erax wilcoxi* new species.
FIG. 3. *Asilus floridensis* new species.
FIG. 4. *Asilus fattigi* new species.
FIG. 5. *Asilus blantoni* new species.

and in bearing long fine white pile on the under sides of the two anterior pairs of femora.

Male. Mystax with thick interior hair, pale straw yellow: outside bristles blackish. Beard white, palpal hairs and bristles of vertex and occiput black. Thorax grayish pollinose. Mesonotum with median black stripe tapering posteriorly and fading before the scutellum is reached; the lateral spots are large and confluent. Hairs and bristles of mesonotum black. Scutellum gray pollinose with usually four long black marginal bristles. Hairs and bristles of pleura and coxae whitish. Wings grayish, subhyaline, interior of cells grayish. Halteres

pale yellowish red. Bristles of legs black. Femora black with tips broadly reddish and with long thin pile on the under sides. Tibiae reddish, extreme tips black; tarsi reddish with tips black. Abdomen brownish black, posterior margins somewhat grayish pollinose. Genitalia (Fig. 5) blackish, more compact than in *notatus*.

Female. Similar. Ovipositor conical, laterally compressed, about equal in length to segments six plus seven.

Holotype, male, Bratt, Fla., April 1, 1933 (Alton Blanton).

Allotopotype, female, April 11, 1933. (In S. W. Bromley Collection.)

Paratopotypes, 4 males, 4 females, Apr. 1–11, 1933 (Alton Blanton).

This species is named in honor of the Blanton brothers, F. S. and Alton, both having collected extensively in Florida, the former an authority on the Trypaneidae.

Another Mantispa Reared.—In a pasture at Bethany, Conn., on August 15, 1939, I collected from under stones several females of *Gnaphosa muscorum* (L. Koch) guarding their egg sacs. On the chance that parasites were within, these sacs as well as those from other spiders were set aside for further observation. On September 1 a callow specimen of *Mantispa interrupta* Say was found to have emerged from a pupal skin on the outside of one of the egg sacs. This skin, and the manner of emergence of the imago were similar to those already described by me for *M. fusicornis* Banks, (1938 J. New York Ent. Soc., XLVI: 147–153). Like the pupal cocoon of *fusicornis,* this one was greenish, loosely woven, and had spider egg shells adhering to it.

Hungerford's observation (1939 Bull. Brooklyn Ent. Soc., XXXIV: 265) makes it practically certain that my specimen of *fusicornis* originated in Michigan, not Connecticut. Therefore, my rearing of *interrupta* constitutes the first Connecticut record for a species of *Mantispa*.—B. J. Kaston, Brenau College, Gainesville, Ga.